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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/26/2003

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EXAMINER

LAO, LUN S

ART UNIT

PAPER NUMBER

2614

NOTIFICATION DATE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing-patent@blacklaw.com
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Office Action Summary	Application No. 10/672,841	Applicant(s) HALL ET AL.	
	Examiner LUN-SEE LAO	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,6-29,39-45 and 73 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6-29,39-45 and 73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08-10-09, 10-31-08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. This action is in response to the Remarks filed on 12-16-2008. Claims 1, 4, 6-11, 13-22, 24-29, 39-45 and 73 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 9-11, 13-22, 24-26, 39-45 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Al-Ali et al (US PAT. 6,584,204) in view of Emoto (US PAT. 5,572,443).

Consider claim 1, Al-Ai teaches a subwoofer speaker apparatus comprising:

a subwoofer speaker housing comprising (see fig.1) and
at least one subwoofer speaker (22).

Al-Ai further teaches a processor (controller 54) coupled to the at least one subwoofer speaker (see fig.1), the processor being configured to receive a first sound signal from an external source (see col. 3 line 28-60) and generate a sound signal (22); the processor is further configured to receive a second sound signal (50) from a second external source, process the second sound signal based on only a plurality of adjustable

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subwoofer parameters (see fig. 5 (100)), and output the processed second sound signal to the at least one subwoofer speaker, wherein the at least one subwoofer speaker is only included in the speaker housing (see figs. 1, 5 and col. 3 line 29-col. 4 line 67 and col. 6 line 27-col. 7 line 57).

Al-Ai does not explicitly teach that the processor is included in the housing.

However, Al-Ai does not limit the location of the processor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Al-Ai could have placed the processor in the subwoofer speaker housing so as to provide the predictable advantages of better protecting the processor and saving space.

Al-Ai also does not teach that the processor generates a video signal based on the sound signal, nor a video output port configured to output the generated video signal.

However, Emoto, also pertinent to audio correction/feedback, teaches generating a video signal based on the sound signal (see fig.3); and a video output port (see fig.2 (16), a video output port reads on the port that connects to the detachable cable) configured to output the generated video signal (see figs. 2, 3, 6A-6D, 7A,7B, 8A-8C, 13-16, 18A-18E, 20A-20D, 28-30, 31A-31C, 32A-32C,33A-33C35,36 and col. 12 line 40-col. 13 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the teaching of Emoto into Al-Ai as modified above such that the processor generates a video signal based on the sound signal and

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the housing includes a video output port configured to output the generated video signal. One of ordinary skill in the art would have been motivated to do so because this would have made the adjustment of the audio output signal easier and thus the correction of the acoustic characteristic more convenient for user.

Consider claim 4, Al-Ali teaches that the external source is a microphone (Al-Ali, see fig.1 (50)).

Consider claims 9-11, Al-Ali teaches the processor is further configured to generate a test sound signal (see fig.1 and col. 18 line 35-40); and the housing further comprises a port configured to output the test sound signal (see col. 18 line 35-40); and the processor further receives changes to one of the first plurality of parameters (see fig.1 and col. 3 line 29-col. 4 line 67 and col. 6 line 27-col. 7 line 57).

Consider claims 17-18, they are essentially similar to claims 9-10 and are rejected for the reason stated above apropos to claims 9-10.

Consider claims 13-15, Al-Ai teaches the subwoofer speaker housing further comprises volume controls configured to control output of the at least one subwoofer speaker (see col. 8 line 4-37), and the subwoofer speaker housing further comprises an indicator light coupled to the processor inherently (such as, power lead in the loudspeaker system and see fig.1 and col. 3 line 29-60), and wherein the subwoofer speaker housing further comprises at least one amplifier (44) coupled to the at least one subwoofer speaker (see col. 3 line 29-60).

Consider claim 16, Al-Ai teaches a sound system including a receiver, the sound system comprising (see fig.1):

a microphone (50);
a control device (54); and
a subwoofer speaker housing comprising (see fig.1):
at least one subwoofer speaker(22);

AI-Ai further teaches a processor (controller 54) coupled to the at least one subwoofer speaker (see fig.1), the processor being configured to receive a first sound signal from an external source (see col. 3 line 28-60) and generate a sound signal (22); the processor is further configured to receive a second sound signal (50) from a second external source, process the second sound signal based on only a plurality of adjustable subwoofer parameters (see fig. 5 (100)), and output the processed second sound signal to the at least one subwoofer speaker, wherein the at least one subwoofer speaker is only included in the speaker housing (see figs. 1, 5 and col. 3 line 29-col. 4 line 67 and col. 6 line 27-col. 7 line 57).

AI-Ai does not explicitly teach that the processor is included in the housing, nor that the processor generates a video signal based on the sound signal, nor to send the generated video signal to a display, wherein the display presents the received video signal.

As to the feature that the processor is included in the housing, AI-Ai does not limit the location of the processor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that AI-Ai could have placed the processor in the subwoofer speaker housing so as to better protect the processor and save space.

As to the limitations that the processor generates a video signal based on the sound signal, and to send the generated video signal to a display, wherein the display presents the received video signal, Emoto, also pertinent to audio correction/feedback, teaches generating a video signal based on the sound signal (see fig.3); and to send the generated video signal to a display (see fig.3), wherein the display presents the received video signal (see figs. 2, 3, 6A-6D, 7A,7B, 8A-8C, 13-16, 18A-18E, 20A-20D, 28-30, 31A-31C, 32A-32C,33A-33C35,36 and col. 12 line 40-col. 13 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the teaching of Emoto into AI-Ai as modified above such that the processor generates a video signal based on the sound signal and the housing includes a video output port configured to output the generated video signal. One of ordinary skill in the art would have been motivated to do so because this would have made the adjustment of the audio output signal easier and thus the correction of the acoustic characteristic more convenient for the user.

Consider claim 19, AI-Ai as modified by Emoto teaches the generated a video signal includes a graphical user interface, the graphical user interface includes a frequency response graph of the sound signal received by the microphone (Emoto, see fig. 3 and see col. 13 line 41-col. 14 line 32).

Consider claim 20, AI-Ai as modified by Emoto teaches the system, wherein the graphical user interface further includes an eight band parametric equalizer limited to subwoofer frequency bands (Emote, see fig.3 (+10 to -10) and see col. 13 line 41-col. 14 line 32).

Consider claim 21, Al-Ai as modified by Emoto teaches that the graphical user interface further includes a parameters section configured to allow a user to set at least a portion of the plurality of parameters using the control device (Emoto, see fig.3 and see col. 13 line 41-col. 14 line 32); and the portion of the plurality of parameters includes two or more of low pass crossover frequency, low pass crossover slope, subsonic frequency, subsonic slope, phase and polarity (Al-Ai, see col. 7 line 59-col. 8 line 67).

Consider claim 22, Al-Ai teaches the portion of the plurality of parameters includes two or more of low pass crossover frequency, low pass crossover slope, subsonic frequency, subsonic slope, phase and polarity (see col. 7 line 59-col. 8 line 67).

Consider claims 24 and 25, Al-Ai as modified by Emoto teaches the system wherein the housing further comprises a port mounted on the housing (Emoto, (see fig.2 (16) reads the detachable cable because the detachable cable needs port to be connected), the port configured to receive the generated video signal from the processor (see fig.2 (42)); and the system, wherein the housing further comprises a port (Emoto, see fig.2 (18, 20) reads on the microphone input terminal and source input terminal) configured to receive sound signals from the processor (Emoto, see fig.2 and see col. 13 line 41-col. 14 line 32).

Consider claim 26, Al-Ai teaches the system wherein the housing further comprises a volume control configured to control output of the at least one subwoofer speaker(see fig.1 and col. 7 line 59-col. 8 line 67 and discussion above in claim 16).

Consider claim 39, Al-Ai teaches a method comprising:

receiving a first sound signal at a subwoofer speaker unit (see fig.1 (20)) from a source external (dref) to the subwoofer speaker unit (20);

processing (54, and fig.5) the first sound signal based on only a plurality of adjustable subwoofer parameters;

outputting the processed first sound signal to at least one subwoofer speaker (22) included in the subwoofer speaker unit (20);

receiving at a processor (54) included in the subwoofer speaker unit a second sound signal generated by a microphone (50); wherein the at least one subwoofer speaker is only included in the subwoofer speaker unit (see fig.1 and col. 3 line 29-col. 4 line 67 and col. 6 line 27-col. 7 line 57);

Al-Ai does not explicitly teach that the processor is included in the housing, nor that the processor generates a video signal based on the sound signal, nor to send the generated video signal to a display couple to the processor.

As to the limitation that the processor is included in the housing, Al-Ai does not limit the location of the processor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Al-Ai could have placed the processor in the subwoofer speaker housing so as to better protect the processor and save space.

As to the limitations that the processor generates a video signal based on the sound signal, and to send the generated video signal to a display couple to the processor, Emoto, also pertinent to audio correction/feedback, teaches generating a

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video signal based on the sound signal (see fig.3); and to send the generated video signal to a display (see fig.3), wherein the display presents the received video signal (see figs. 2, 3, 6A-6D, 7A,7B, 8A-8C, 13-16, 18A-18E, 20A-20D, 28-30, 31A-31C, 32A-32C,33A-33C35,36 and col. 12 line 40-col. 13 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the teaching of Emoto into AI-Ai as modified above such that the processor generates a video signal based on the sound signal and the housing includes a video output port configured to output the generated video signal. One of ordinary skill in the art would have been motivated to do so because this would have made the adjustment of the audio output signal easier and thus the correction of the acoustic characteristic more convenient for the user.

Consider claims 40 and 42, AI-Ai as modified by Emoto teaches generating a test sound signal by the processor; and sending the generated test sound signal to a sound system coupled to the processor (Emoto, see figs 1A-5A and 11 and see col13 line 42-col. 14 line 67); and presenting the generated video signal on the display, wherein the presented video signal includes a graphical user interface, the graphical user interface includes a frequency response graph of the sound signal received by the microphone (Emoto, see figs 1A-5A and 11 and see col. 13 line 42-col. 14 line 67).

Consider claim 41, AI-Ai teaches generating an output test sound signal at the sound system based on the received test sound signal; and sending the generated output test sound signal to one or more speakers coupled to the sound system and to

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the at least one subwoofer speaker of the subwoofer speaker unit via the processor (see fig.1 and col. 18 line 35-40).

Consider claims 43 and 44, Al-Ai as modified by Emoto teaches the method wherein the graphical user interface further includes an eight band parametric equalizer limited to subwoofer frequency bands (Emoto, see fig.3 (+10 to -10) and see col. 13 line 41-col. 14 line 32); and wherein the graphical user interface further includes a parameters section configured to allow a user to set at least a portion of the plurality of parameters using a control device (Emoto, see fig.3 and see col. 13 line 41-col. 14 line 32).

Consider claim 45, Al-Ai teaches the portion of the plurality of parameters includes two or more of low pass crossover frequency, low pass crossover slope, subsonic frequency, subsonic slope, phase, and polarity (see col.7 line 59-col. 8 line 67).

Consider claim 73, Al-Ai as modified by Emoto teaches the apparatus wherein the subwoofer speaker housing further comprises the port configured to receive the generated video signal from the processor inherently (see fig. 1 and the discussion above claim 1); but Al-Ai as modified by Emoto does not clearly teach a port mounted on an exterior of the housing, the port configured to receive the generated video signal from the processor.

However, a video port mounted on an exterior of a housing is well known in the art (the examiner is taking an Official notice).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the loudspeaker system as taught by Al-Ai as modified by Emoto could have a video port mounted on an exterior of the housing in order to provide the predictable advantage of easy video connection for the user.

4. Claims 6-8 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Al-Ali et al (US PAT. 6,584,204) as modified by Emoto et al (US PAT. 5,572,443) as applied to claims 1, 4 and 16 above and further in view of Ouchi (US PAT. 6,072,879).

Consider claim 6, Al-Ai as modified by Emoto do not explicitly teach the apparatus further comprising a wireless remote control configured to allow user manipulation of the parameters.

However, Ouchi teaches a subwoofer speaker apparatus comprising a wireless remote control configured to allow user manipulation of the parameters (see fig. 17 and col. 13 line 50-col. 14 line 24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Ouchi into Al-Ali and Emoto so that the acoustic characteristic correction device could have been more convenient to use for the user.

Consider 7-8, Al-Ai as modified by Emoto and Ouchi teaches the apparatus, wherein the housing further comprises a wireless communication component coupled to the processor, wherein the wireless communication component is configured to receive

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signals from the wireless remote control that allows a user to manipulate at least one of the parameters (Ouchi, see fig. 17 and col. 9 line 15-col. 10 line 67); and wherein the wireless communication component includes an optical sensor (Ouchi, see fig.17).

Claims 27 -28, they are essentially similar to claims 7-8 and are rejected for the reason stated above apropos to claims 7-8.

Consider claim 29, Ouchi teaches that the wireless remote control (see fig.1 (150)) includes one or more preset buttons (A-D) configured to send a preset command signal to the processor, wherein the processor processes sound signals according to parameters set in accordance with the received preset command signal (see col.9 line 15-col. 10 line 67 and discussion above claim 16).

Response to Arguments

5. Applicant's arguments filed 12-16-2008 have been fully considered but they are not persuasive.

Applicant argued that Al-Ali limit their invention to locating the processor (controller 54) outside of the speaker housing 23 and that placing the processor inside the speaker housing is impermissible hindsight analysis (see the remarks page 8 third paragraph).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was

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within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In this case, the processor of AI-Ai performs the functions as claimed, irrespective of its location. Further, applicant has not provided evidence of criticality for placing the processor inside the speaker housing. With the limited number of choices (placing the processor either outside the housing or inside the housing), it would be obvious to place the processor inside the housing, for the predictable advantage of better protecting the processor and saving space. Thus, AI-Ai as modified meets the limitation as claimed.

Applicant further argued that Emoto fails to teach generating a video signal based on the sound signal and a video output port.

The examiner responds that Emoto teaches generating a video signal based on the sound signal (see fig.3). Emoto also teaches a video output port (see fig.2 (16)), wherein a video output port reads on the port that connects to the detachable cable (see figs. 2, 3, 6A-6D, 7A,7B, 8A-8C, 13-16, 18A-18E, 20A-20D, 28-30, 31A-31C, 32A-32C,33A-33C35,36 and col. 12 line 40-col. 13 line 41). Thus, the combination of AI-Ai and Emoto meets the claimed limitation.

Conclusion

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Loeb et al. (US PAT. 6,829,131) is recited to show how other related **ADJUSTABLE SPEAKER SYSTEMS AND METHOD**.

8. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
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Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See
/LUN-SEE LAO/
Examiner, Art Unit 2614
Patent Examiner
US Patent and Trademark Office
Knox
571-272-7501
Date 08-28-2009

/Xu Mei/
Primary Examiner, Art Unit 2614